Washington State On-Site Wastewater Technical Review Committee

Summary Minutes for the March 4-5, 1999 Meeting

Approved on May 20, 1999 by Vote of the Committee

CONTENTS **PAGE**

TECHNICAL DISCUSSION ATTACHMENTS[1]

MEETING ATTENDEES

Members Present
Kevin Barry
Clifford Bates
Charles Mortimer, Chair
Tom Rogers
Bob Sylvester
Mike Vinatieri

Members Absent
Dean Bannister
Bob Monetta
Lisa Palazzi

Guests Who Signed In
Dell Bellingar
Jim Bransfield
Bill Montgomery
Andy Gersen
John Glasco
Dan Kelly
Ken Moody
Jim F. Wallace
Jim Wolfe

DOH Staff
Wayne Turnberg, Coordinator
Mark Soltman, Facilitator
Richard Benson
Lisa Brown
John Eliasson
Selden Hall

INTRODUCTION - The two day meeting (March 4-5, 1999) was called to order by Charles Mortimer at approximately 9:00 a.m. on March 4, 1999 in the Tamarack Room of the Courson Conference Center, Central Washington University, Ellensburg, Washington.

SUMMARY OF TECHNICAL DISCUSSIONS

Subsurface Drip Disposal Systems Applied To Combined Wastewater - Richard Benson distributed and presented an overview of the first draft Recommended Standards and Guidance for Subsurface Drip Systems for combined wastewater systems. Richard noted that the current draft is based upon the Subsurface Drip for Greywater Systems document which appears in the Water Conserving On-Site Wastewater Treatment Systems RS&G, December 31, 1998. Additional details are presented in Attachment A.

- Assignment: The TRC will review the draft document and provide comments to Richard Benson by April 15, 1999. Richard will revise the draft document and present to the TRC at its next scheduled meeting.

Recirculating Gravel Filters – Lisa Brown presented three issues for discussion by the TRC as follows: 1) Modifying the standards and guidance to provide for other mechanisms of flow splitting, in lieu of just the "Mickey Mouse" buoyant ball valve; 2) Allowing smaller more frequent doses as long as the recirculation rate of 5 is maintained; and 3) Drainfield reductions following Recicrculating Gravel Filter treated effluent. Additional details are presented in Attachment B.

- Assignment: With regard to the issue of modifying the standards and guidance to provide for other mechanisms of flow splitting, Lisa will 1) draft additional language for the flow splitting standards and provide examples in guidance, 2) send out to the TRC for review, and 3) bring this issue for discussion at the next TRC meeting. With regard to the issue of modifying the standards to allow for smaller, more frequent RGF dosing with a recirculation rate of five, Ms. Brown noted that there is currently insufficient information which would support a change to the RS&G, but has requested that the TRC provide the DOH with any information that they are aware of on this subject.

Stratified Sand Filters - Lisa Brown noted that the need for continuation of the Stratified Sand Filter guidance document has been raised as an issue in part because: 1) there are only a few SSFs that have been installed in the state, 2) there is a lack of information collected on those that have been installed, 3) the current SSF guideline is in interim status, which would require performance information to bring it to final status; and 4) it would require additional resources and time to revise the current document that may be better used pursuing other on-site related activities. Ms. Brown also noted that there is support for maintaining the document by some members on the TRC, and that specific technical issues have been flagged, such as those relating to venting. Kevin Barry noted that SSFs could continue being installed under the experimental system program, and that the current guideline is so restrictive anyway that it reduces its effectiveness as a guideline.

- Recommendation: The issue of revising the current Stratified Sand Filter guidance document will be addressed by the TRC at a future date, which has not yet been scheduled.

Aerobic Treatment Units - Mark Soltman lead the continued discussion leading towards completion of the draft ATU RS&G document. Additional details are presented in Attachment D.

- Recommendation: By general consensus, the committee agreed that the following two items are to be high priority on the TRC list for the next year or more, that the TRC will work towards developing this information, knowing that the issues are inter-related and separate at the same time, requiring different input from different groups: 1) Establish development of standards for disinfection equipment and testing as a HIGH PRIORITY for DOH/TRC [Involving DOH, TRC, and Private

Sector], and 2) Initiate discussion and study with continued use of the fecal coliform values of TS 1&2. (This would especially come into play as the DOH conducts its review of the onsite rules. This discussion would come into play in the revision of those rules.). The TRC, also provided by general consensus, that the DOH shall be given license to address the following proposals, to modify the draft ATU document, and present the modified draft to the TRC for further discussion: 1) Add to the draft document a discussion about disinfection and the level of assurance, in keeping with the meeting discussion; 2) Add information about mating tested disinfection equipment with tested ATU equipment, again in keeping with the meeting discussion. 3) Add or clarify about different levels of treatment, and how those levels of treatment relate to vertical separation, application rate, and distribution methods. It was suggested that the approach taken by the above table be used in the document. 4) Review information provided in the guidance box about ultraviolet disinfection, clarify, and provide the citations where the information came from for accuracy. 5) Modification of the draft ATU document's section which addresses effluent source, quality and volume as indicated in the discussion as indicated in #5 of the discussion above. 6) Modification of the draft ATU document's effluent screening requirements as indicated in #6 of the discussion above. 7) Modification of the draft ATU document's sampling port requirements as indicated in #7 of the discussion above, and 8) Modification of the draft ATU document's intermittent use guidance statements as indicated in #8 of the discussion above.

Experimental Systems –

- **Kelly Earthworks Modified Sand Filter –** Dan Kelly from Kelly Earthworks presented a proposal to the TRC regarding a sand filter of a modified design. Mr. Kelly sought a general nod and input from the TRC relative to further experimental trial and evaluation of his proposal. The purpose of the proposal was to justify the use of a vinyl cover on a sand filter in place of geotextile cover under the following parameters: 1) a sand filter incorporating open bottom, gravel-less chambers, and 2) a sand filter with a 4 inch air manifold vented to the surface on each end of the chambers. The goals of this design are 1) to increase oxygen transfer, and 2) to restrict water input from precipitation and infiltration to reduce the potential for failure and improvement of treatment. Mr. Kelly noted that he has installed six systems of this design in Thurston County. Five of the systems involved power venting, and one passive venting due to a lack of electrical connection. Based on the presentation and discussion, the TRC provided the following suggestions: 1) information should be collected comparing test systems with control systems, 2) information should be collected comparing power venting systems with passive venting systems; 3) test parameters should include fecal coliform and dissolved oxygen testing, 4) other test data should also be considered (e.g., flow data, temperature), 5) the frequency of testing should be established.
    - Recommendation: By general consensus, the TRC recommended that Mr. Kelly proceed with the proposal as an experimental system, and to work with John Eliasson of the DOH to develop the experimental system protocol for this design.

- **Reactex Textile Filter Application –** John Glasgow presented information related to an experimental system proposal. The proposal was prepared as part of an application to the Grant County Health District for a permit to construct a replacement septic system for a residential development of 24 condominiums at Crescent Bar, Washington. The two septic systems built in 1992 are without an adequate replacement drainfield area due to construction of a swimming pool, concrete walkways, a cabana building and other structures that were built over a portion of the reserve drainfield area. Based on a review of various options, the applicant determined that constructing a "super compact" replacement system on one of the remaining undisturbed lots was the most practical option. The proposed replacement drainfield would be compressed into a size of less than one fifth of that required under current regulations (more than an 80% drainfield size reduction). The applicant's

proposal involved pre-treating the effluent using an experimental new filter medium called Reactex© in conjunction with a recirculation technology developed by Orenco Systems of Oregon.

- Recommendation: After discussion, the TRC determined that the proposal was inappropriate for review under the experimental systems program of WAC 246-272-05001 [Experimental systems], and voted unanimously that the project would be more appropriately addressed via WAC 246-272-25001 [Waiver of state regulations], and remanded the project back to the local health jurisdiction and DOH for this purpose.

Septic Tank Effluent Filters - Mark Soltman informed the committee that the NSF Wastewater Technology Joint Committee is moving into the latest draft standards addressing septic tank effluent filters, ANSI/NSF Standard 46, *Evaluation of Components and Devices Used in Wastewater Treatment Systems*, Section 10, *Filtration Devices for Residential Gravity Flow Septic Tank Systems*. The current Section 10 draft includes the following tests: 1) flow for clean filters, 2) flow for partially clogged filters, 3) structural integrity, 4) solids reduction, 5) bypass protection, 6) materials, 7) design and construction, and 8) product literature. NSF balloting and adoption should be completed during the Spring of 1999. Once adopted, it is assumed that NFS will move to a testing and listing program shortly thereafter. The question for the state is whether or not it will enforce that testing program as written, or in a modified format. This could be done initially as guidance, and ultimately via adoption into revised on-site rules, either by NSF testing or testing by some other suitable testing organization using those protocols.

- Assignment: Mark asked the committee to review the draft and prepare for discussion for the next meeting, which ultimately will lead to TRC recommendations to the DOH, possibly by that meeting.

Filter Fabrics/Geotextiles – Mark Soltman provided the TRC with a two page summary regarding geotextiles used as a barrier between drainfield gravel and soil backfill, and a copy of the Standard Specification for Geotextile in Subsurface Soil Absorption Systems (SSAS), which is found in the DOH guidance document for Large On-Site Sewage Systems. Mark described the issue as one involving the need for a material that is light enough to allow sufficient air movement, but heavy enough to keep the fines out, which is a difficult combination to achieve. Problems with geotextiles have been reported, but at this point, the source of this information is anecdotal. The extent of the problem has never been quantified in Washington state. Based on the anecdotal reports of problems, the question posed to the TRC centers on that which needs to be done regarding the need for geotextiles standards, particularly for mounds and sand filters. The TRC agreed that the first priority involves determining the degree of the problem. Once determined, the next courses of action may include 1) the DOH and TRC working together in establishing a small, ad hoc committee/work group with specific geotextile industry expertise represented so that the industry can help to identify what the questions are, and the DOH/TRC can get the information to help the industry answer these questions. In this way, information can be brought back for analysis and discussion; and 2) based on this information, the TRC could formally take on the issue for alternative system applications. Additional information is presented in Attachment E.

- Assignment: By the next meeting, the DOH will scope out how large a project it will be to conduct an assessment of problems relating to geotextiles in Washington state, and how this will fit into other DOH competing priorities.

Eljen In-Drain – This discussion was prompted by an on-going, long term request for product approval by Eljen In-Drain. To date, the information submitted by Eljen In-Drain has not been scientifically adequate for DOH to accept as being valid. Mark Soltman presented an approach to the TRC for their information, and asked the committee to review the approach for feedback on its reasonableness.

- Status: This issue will again be addressed at a future TRC meeting.

At-Grade Soil Absorption Systems – Mark Soltman presented the next draft of the At-Grade Drainfields RS&G to the committee. This draft reflects application to high quality wastewater, as opposed to just

septic tank effluent. It has taken an approach followed in the draft ATU RS&G, based on effluent quality and what that means in terms of application rates and vertical separation. Other technical issues which remain outstanding are presented on page 4 of the draft RS&G, which include:

- Pretreatment levels and at-grade drainfield size (application rates)
- Pretreatment levels and vertical separation… "is 12 inches vertical separation really enough?"
- Wastewater source vs. wastewater strength (residential vs. residential strength)
- Maximum bed width / (varies with soil types)
- Address linear loading rate…..relates to the maximum bed width
- Placement of multiple "at-grade drainfields" on a slope / "stacked"
- Construction methods
    - Gravel vs. gravelless
    - "fill first" vs. "cover later" approaches

Mark noted that he had not made many additional changes from the previous document. Tom Rogers asked, beginning on page 10, the reasoning behind addressing pre-treatment levels, soil types and vertical separation, as it was done in the draft ATU document. Mark stated that the reasoning is that if higher quality effluent is generated, then it can be applied at higher rates, even in at-grade systems. Tom noted that this appears redundant in light of it being addressed in the ATU guideline. Bob Sylvester expressed the need to have such issues in all documents with which they pertain, rather than being addressed by reference. Mark noted that Selden Hall will be taking over developing this document.

- Assignment: The TRC will review the draft RS&G and provide "larger picture" comments to the DOH prior to its next meeting. DOH will continue development of the document and present the next draft at the next TRC meeting.

ADMINISTRATIVE/OTHER ISSUES

TRC Process Manual – The TRC voted to include a quorum policy in the TRC Process Manual. By unanimous vote, the committee recommended that six members must be present at a meeting for a vote of the committee to take place. A recommendation by the committee may be made to the DOH by simple majority vote.

- Recommendation: If a meeting lacks a quorum of its members, it shall be determined by the Chair and the DOH, about whether or not the meeting shall take place for presentation and/or discussion purposes.

Minutes – The Committee noted its approval of the December 3-4, 1998 TRC meeting minutes with corrections as noted, by majority vote.

Future Members – The terms of Bob Sylvester, representing the Department of Ecology, and Mort Mortimer, representing engineers, will expire on June 1, 1999. The Department of Ecology will conduct a search to provide a new representative to the committee. The DOH, with assistance from the TRC, will conduct a search to find an engineer representative for the committee.

Next Meeting - The next TRC meeting is scheduled to be held on May 20-21, 1999 at the Central Washington University Conference Center in Ellensburg.

LIST OF MEETING MATERIALS

Administrative

- Meeting Agenda – March 4-5, 1999
- Meeting Agenda – March 4-5, 1999 (Revised)
- Draft Meeting Minutes – December 1998 TRC Meeting

Subsurface Drip Disposal Systems Applied to Combined Wastewater

- Recommended Standards and Guidance for Subsurface Drip Systems – Draft (Printed 3/4/99)

Recirculating Gravel Filters

- Cover Memo to the TRC – March 3, 1999
- Recirculating Gravel Filter Systems – Draft RS&G (Printed 3/3/99)
- Summary Chart of Supporting Literature prepared by Lisa Brown - [Reference Document / Pump Cycles / Recirculating Ratio / Effective Size]
- Supporting Literature:
    - Metcalf & Eddy. Wastewater Engineering: Treatment, Disposal, Reuse – Third Edition. Pages 1066, 1079, 1080.
    - US Environmental Protection Agency. Onsite Wastewater Treatment and Disposal Systems – Design Manual. EPA-625/1-80-012. Page 123 [Table 6-6 – Performance of Recirculating Intermittent Filters]. October, 1980.
    - Loudon TL. Design of recirculating sand filters. Proceedings of the 8th Northwest On-Site Wastewater Treatment Short Course and Equipment Exhibition, Seattle, Washington. Pages 183-202. September 18-19, 1995.
    - Hines M and Favreau RE. Recirculating sand filter: An alternative to traditional sewage absorption systems. Proceedings of the National Sewage Disposal Symposium. Pages 130-137. 1974.
    - Thompson DB and Reese LE. Cold climate performance of recirculating sand filters. Proceedings of the Fourth National Symposium on Individual and Small Community Sewage Systems, New Orleans, Louisiana. Pages 333-341. December 10-11, 1984.
    - Ball JL and Denn GD. Design of recirculating sand filters using a standardized methodology. Proceedings of the 9th Northwest On-Site Wastewater Treatment Short Course and Equipment Exhibition, Seattle, Washington. Pages 215-230. September 22-23, 1997.
    - Bounds TR. Design criteria for recirculating sand filters. Orenco Systems, Inc., Roseburg, Oregon. Pages 1-13. July 7, 1998.
    - Orenco Systems Incorporated. Recirculating Ball Valves – Submittal Data Sheet. 1996.
    - Orenco Systems Incorporated. Recirculating Splitter Valve (RSV) Application Sheet. 1997.

Stratified Sand Filters

- None

Aerobic Treatment Units

- Note: The Aerobic Treatment Units – Draft RS&G (October 20, 1998 Draft), forwarded to the TRC at its December 3-4, 1998 meeting, was used for this discussion.
- Converse JC and Tyler EJ. Soil disposal of highly pretreated effluent – Considerations for incorporation into code. 1998 NOWRA Proceedings. Pages 42-49. 1998.
- Memo from Ken Moody to Mark Soltman. UV "The Disinfector." October 20, 1998.

Experimental Systems Review

- **Modified Sand Filter Design - Kelly Earthworks Proposal**
  - March 5, 1999 meeting handout memo from Dan Kelly to the TRC re: Impervious Sand Filter Coverings.
  - History of Correspondence
    - January 14, 1999 letter from Steven Petersen, Thurston County Public Health and Social Services Department, to Dan Kelly, Kelly Earthworks re: Response to January 11, 1999 Letter.
    - January 11, 1999 letter from Dan Kelly to Steve Peterson, Thurston County Public Health and Social Services Department, re: Waivers to Thurston County Onsite Sewage Guidelines for Sand Filters.
    - January 8, 1999 letter to {generic} from Dan Kelly re: Notification of Deviation from Current Health Codes.
    - October 15, 1998 letter from to Steve Peterson, Thurston County Public Health and Social Services Department, to Dan Kelly re: Installer's Meeting, SSR#3189, Tax Parcel #12930310504.
    - September 3, 1998 letter from Dan Kelly to Steve Peterson, Thurston County Public Health and Social Services Department, re: Waivers to Thurston County Onsite Sewage Guidelines for Sand Filters.

- **Reactex Textile Filter**
  - Overview of the Orchards proposed Experimental System Components and Monitoring Plan – Summary prepared by John Eliasson. March 4, 1999.
  - Experimental System Proposal, Eco-Nomic Environmental Services.

Septic Tank Effluent Filters

- January 27, 1999 letter from Richard Haffner, NSF, to Mark Soltman, DOH re: ANSI/NSF Standard 46 Section 10 – Latest Draft.
  - Attachment – ANSI/NSF Standard 46 – New Section Addresses Septic Tank Effluent Filters. *Regulatory World*. No Date.
  - Attachment – Draft Revision to ANSI/NSF 46-1997, Revision 3.6. December 1998.

Filter Fabrics/Geotextiles

- Information and Issues for TRC discussion, March 4-5, 1999, regarding geotextiles used as a barrier between drainfield gravel and soil backfill. Prepared by Mark Soltman, 3/2/99.

Eljen In-Drain

- Notes for presentation to the TRC, March 4-5, 1999 regarding Eljen In-Drain request for product approval. Prepared by Mark Soltman, 3/2/99.

At-Grade Drainfields

- At-Grade Drainfields – Draft RS&G (Printed 3/3/99)

TECHNICAL DISCUSSION ATTACHMENTS[1]

If you wish to obtain copies of the Technical Discussion Attachments, please contact Wayne Turnberg either by telephone [206-522-0132], fax [206-528-9839], or email [wayne.turnberg@doh.wa.gov].